REMARKS

Claims 1-56 were originally pending. Claims 1-7, 9, 11-13, 15-16, 18, 20-30, 37, 39, 41-42, 46, and 48-49 were amended. Claims 8, 10, 19, 38, 45, 47, and 50-56 were canceled. No claims have been added. Accordingly, claims 1-7, 9, 11-18, 20-37, 39-44, 46, and 48-49 are currently pending.

As a preliminary matter, under present practice, second or any subsequent actions on the merits shall be final, except where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement. (MPEP §706.07(a)). In this case, the claim amendments do not necessitate a new search on part of the Office or present additional matters for consideration. This is because these amendments were made either to correct grammatical errors, address the presented 35 USC §112 rejections, or to incorporate aspects of dependent claims into independent claims, and adjust dependent claim language accordingly. Thus, it is respectfully submitted, that the Office has already had the opportunity to examine all features of the pending claims. In view of this, any immediately subsequent action on the merits, will not be necessitated by the amendments to the claims presented in this response.

Title Objection

The Action asserts that the title of the invention "Sleep Queue Management" is not descriptive, and a new title is required that is clearly indicative of the invention to which the claims are directed. In view of this the title has been changed to "Systems and Methods for Managing a Multi-

Dimensional Sleep Queue". This title is clearly indicative of the invention to which the claims are directed. For instance, independent claim 39 recites in part "[a] system for managing a sleep queue [...]." In another example, independent claim 1 recites in part "[a] computer implemented method for managing a multi-dimensional sleep queue [...]." Independent claim 13 recites in part "[a] computer-readable medium for managing a multi-dimensional sleep queue [...]." Independent claim 24 recites in part "[a] computer implemented method for managing a multi-dimensional sleep queue [...]." Independent claim 31 recites in part "computer-executable instructions for managing a multi-dimensional sleep queue [...]." Accordingly, it is respectfully submitted that the new title "Systems and Methods for Managing a Multi-Dimensional Sleep Queue" is clearly indicative of the invention to which the claims are directed.

If the Office still would like to change the title, even in view of the above examples of the title's appropriateness, the Office is invited to suggest a new title.

Claim Objections

Claims 23, 37, and 49 stand objected to because of informalities. Claims 23, 37, and 49 have been amended to correct the indicated informalities. In view of these amendments, withdrawal of the objections to claims 23, 37, and 49 is respectfully requested.

35 USC §112, Second Paragraph Rejections

Claims 4-6, 11-12, 15-17, 22-30, 38, and 56 stand rejected under 35 USC §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 11, 12, 22, and 23 have been amended to correct lack of antecedent basis errors. In view of the above, withdrawal of the 35 USC §112, second paragraph rejection of claims 11, 12, 22, and 23 is respectfully requested.

At page 3, section b.i., the Action indicates with respect to claims 4-6, and 15-17, that it is uncertain what is meant by the phrase "deterministic amount of time". The Office is respectfully directed to the specification at page 13, lines 18-22, wherein the phrase is clearly defined. More particularly, "the amount of time it takes to remove any number of nodes with a particular wake-up time is based on the amount of time it takes to detach a single node from the sleep queue. Thus, the multi-dimensional sleep queue provides for removing a group of nodes from the sleep queue in a bounded, or determinative amount of time."

In view of the above, it is trusted that the 35 USC §112, second paragraph rejection of claims 4-6, and 15-17 will be withdrawn.

At page 3, section b.ii., the Action indicates with respect to claim 24, that it is uncertain how an "atomic walk procedure" works (i.e., applicant should also consider defining "atomic walk procedure"". In view of this rejection, the Office is respectfully directed to Applicant's specification at page 6, line 14 through page 20, line 9, which references Figs. 6 though 9, and which clearly describes an exemplary "atomic walk procedure". These pages are not recited in their entirety herein, but are incorporated by reference. The Office is urged to reconsider this description of an exemplary "atomic walk procedure", as the features of the claims are to be interpreted in light of the specification.

In view of the above, it is trusted that the 35 USC §112, second paragraph rejection of claim 24 will be withdrawn.

At page 3, section b.iii., the Action indicates with respect to claim 25, that it is uncertain what "a last examined thread" is. In view of this rejection, the Office is respectfully directed to Applicant's specification at page 16, lines 21-23, which describes operations of procedure 600 of Fig. 6, clearly indicate that "[i]f the new thread is determined not to be the first thread (block 610), at block 618, the procedure *sets a last examined node*/thread to reference, the inserted first node (block 612)." [Emphasis added]. Additionally, referring to Fig. 6, block 618 maps the phrase "sets the last examined node" from the specification to the phrase "set last node to first node in the sleep queue". This example alone provides an exemplary illustration of one embodiment of a "last examined thread". The Office is urged to reconsider this description of an exemplary "atomic walk procedure", as the features of the claims are to be interpreted in light of the specification.

In view of the above, it is trusted that the 35 USC §112, second paragraph rejection of claim 25 will be withdrawn.

Claims 38 and 56 have been canceled.

With respect to the 35 USC §112, second paragraph rejections of claims 26-30, the Action does not describe how these claims were rejected. Applicant trusts that these claims are in condition for allowance. If these claims are again rejected under this provision, it is respectfully requested for the Office to particularly describe the rejection to these claims.

35 USC §101 Rejections

Claims 1-12 and 24-30 stand rejected under 35 USC §101 as being directed to non-statutory subject matter. More particularly, the Action at page 4, section 7, asserts that these claims include features that can be practiced mentally in

conjunction with pen and paper, and are therefore directed to non-statutory subject matter. Applicant respectfully disagrees with this rejection. However, these claims have been amended to change "method" to "computer implemented method", as suggested by the Action. In view of these amendments, withdrawal of the 35 USC §101 rejection of claims 1-12 and 24-30 is respectfully requested.

35 USC §103(a) Rejections

Claims 1-56 stand rejected under 35 USC §103(a) as being unpatentable over Applicant Admitted Prior Art (AAPA) in view of U.S. Patent no. 6,609,161 to Young. These claim rejections are traversed.

Claim 1 recites in part:

> *"inserting the thread of execution into a first dimension of the multi-dimensional sleep queue if:*
> *(a) there is not a thread with a wake-up time equivalent to the predetermined amount of time in the first dimension; and*
> *(b) if there are one or more different threads of execution with the wake-up time in a second dimension of the multi-dimensional sleep queue, each of the one ore more different threads of execution has a thread priority lower than or equal to a thread priority associated with the thread of execution."*

In addressing claim 1, the Office Action ("Action") admits that AAPA does not teach or suggest "a multi-dimensional sleep queue" as claim 1 recites, and concedes that AAPA teaches use of a single dimension sleep queue. To supply this missing feature, the Action relies on Young's description of a multi-dimensional hardware control block queue. Applicant respectfully submits that this combination of teachings provided by AAPA in view of Young does not teach or suggest the recited features of claim 1, at least for the following reasons.

Fig. 2 of AAPA, which shows prior art, clearly illustrates an existing single dimension sleep queues representing threads with the same wake up times in the first and only dimension of the queue. For instance, Fig 2 shows two nodes 202-2 and 202-... with respective wake up times of 10ms. Instead AAPA explicitly shows multiple nodes with a same wake-up time in the single dimension sleep queue. Thus, AAPA does not teach or suggest "inserting the thread of execution into a first dimension of the multi-dimensional sleep queue only when: (a) there is not a thread with a wake-up time equivalent to the predetermined amount of time in the first dimension", as claim 1 recites. With respect to "a second dimension", AAPA does not even describe a second dimension.

With respect to Young, the Action asserts at page 7, section 20, that Young describes a first dimension (i.e., a "common queue") of a multi-dimensional queue with only one SCSI Control Block (SCB) per target in the common queue. However, even in view of this assertion, Young, at col. 2, line 26, through col. 3, line 37 (see also Figs. 3B and 3C) merely describes a first queue (a "common queue") for storing SCBs directed to different targets, and a second queue (a "target queue") for appending SCBs directed to a particular target that already has an SCB directed to the same target in the common queue.

More particularly, Young at col. 3, lines 8-18, describes "[a] method of managing a command block execution queue where each command block is associated with one of a plurality of target devices includes testing a predefined location in a list of target tail pointers to determine whether a target queue exists for a target device specified in a hardware command block. The method further includes *appending the hardware command block to a tail of the target queue for the target device upon the testing indicating that the target queue exists, and*

appending the hardware command block to a tail of a common queue upon the testing indicating that the target queue does not exist." [Emphasis added].

In view of the above, it is respectfully submitted, that whenever there is already a first SCB directed to a target in the common queue (first dimension), a system of Young will always append a different SCB that is directed to the same target, to the end of the target queue (second dimension) of which the first SCB is a head pointer of the target queue. This means that Young will never insert the different SCB into a first dimension (the "common queue") of a multidimensional queue under these conditions. Thus, the system of Young may never "inserting the thread of execution into a first dimension of the multi-dimensional sleep queue if: (a) there is not a thread with a wake-up time equivalent to the predetermined amount of time in the first dimension; and (b) if there are one or more different threads of execution with the wake-up time in a second dimension of the multi-dimensional sleep queue, each of the one ore more different threads of execution has a thread priority lower than or equal to a thread priority associated with the thread of execution", as claim 1 recites.

For at least these reasons, the single dimension sleep queue of AAPA in view of the multi-dimensional SCB queue of Young does not teach or suggest the features of claim 1.

Accordingly, the 35 USC §103(a) rejection of claim 1 over AAPA in view of Young is improper and should be withdrawn.

Claims 2-7, 9, 11, and 12 depend from claim 1 and are allowable over the cited combination solely by virtue of this dependency. For this reason alone, the 35 USC §103(a) rejection of claims 2-7, 9, 11, and 12 is improper and should be withdrawn.

Additionally, claims 7, 11, and 12 include additional features that are not taught or suggested by the cited combination of references. For example, claim 7 recites in part "sorting the thread of execution into the first dimension based on respective thread wake-up times", "sorting the thread of execution into the second dimension based on respective thread priorities", and "wherein the thread of execution is sorted first with respect to the first dimension and second with respect to the second dimension." The Action at page 7, section 18, concedes that AAPA does not teach or suggest a second dimension. Yet, the Action in section 19, asserts that sorting in the second dimension, as described in claim 1, would have been obvious to an ordinary person of skill in the art, because AAPA describes sorting in a single dimension with respect to wake-up time and thread priority, and Young teaches sorting the in the first and second dimensions based on order of arrival. This conclusion is unsupportable.

As already described with respect to claim 1, when Young determines that an existing block in the common queue (first dimension) is already associated with a particular target (a first characteristic of an SCB), Young merely appends any different block directed to the same target to the end of the corresponding target queue (a second dimension) because the different block arrived later in time than any number of other blocks directed to the same target. Thus, once a SCB is known to belong to a particular target queue, Young just appends the SCB to the target queue as a function of when the SCB arrived. This time of arrival is completely independent of any inherent attribute of an SCB. Thus, when Young appends an SCB to a target queue, Young is not sorting the SCB into the target queue, rather Young is automatically appending the SCB to the end of the target queue to maintain a desired first-in-first out status for the SCB.

This is in stark contrast to the features of claim 7, which recite "sorting the thread of execution into the first dimension based on respective thread wake-up times", "sorting the thread of execution into the second dimension based on respective thread priorities", and "wherein the thread of execution is sorted first with respect to the first dimension and second with respect to the second dimension", as claim 7 recites. According to these features, a thread with a particular priority is sorted to determine its position with respect to different threads in a second dimension. As clearly described in the specification, this sorting may result in thread placement at the head of the second dimension (in first and second dimensions), at the tail of the second dimension, or somewhere in-between--all as a function of any other priority attributes of other nodes in the second dimension. In contrast to what Young teaches, "the thread of execution" would not automatically be appended to the tail of the second dimension queue.

In view of the above, AAPA, which does not sort anything in a second dimension, in view of Young, which merely appends an SCB to the end of the target queue to maintain a first-in-first out SCB status, does not teach or suggest "sorting the thread of execution into the second dimension based on respective thread priorities", as claim 7 recites.

Accordingly, and for this additional reason, the 35 USC §103(a) rejection of claim 7 should be withdrawn.

In another example, **claim 11** recites in part "identifying a different thread in the first dimension that has a wake-up time equivalent to the predetermined amount of time", and "responsive to identifying the different thread: concluding that a first priority corresponding to the thread of execution is higher than a second priority corresponding to the different thread", and "replacing the different thread

in the first dimension with the thread of execution, such the thread of execution is a member of both the first and the second dimensions, and such that the replaced thread has a secondary position with respect to the first and second dimensions." For the reasons already described above, AAPA does not even describe a second dimension and Young merely appends SCBs to the end of a queue. Thus, AAPA in view of Young may never "replacing the different thread in the first dimension with the thread of execution, such the thread of execution is a member of both the first and the second dimensions, and such that the replaced thread has a secondary position with respect to the first and second dimensions", as Applicant claims.

Accordingly, and for these additional reasons, the 35 USC §103(a) rejection of claim 11 should be withdrawn.

In yet another example, **claim 12** recites in part "identifying a different thread in the first dimension that has a wake-up time equivalent to the predetermined amount of time", and "responsive to identifying the different thread: determining that a first priority corresponding to the thread of execution is lower than a second priority that corresponds to the different thread", and "inserting the thread of execution into the second dimension, such the thread of execution occupies a secondary position with respect to the first and second dimensions and such that any different threads in the second dimension with lower priority than the first priority are subsequent in position to the secondary position."

For the reasons already described above, AAPA does not even describe a second dimension and Young merely appends SCBs to the end of a queue. Thus, AAPA in view of Young may never "inserting the thread of execution into the second dimension, such the thread of execution occupies a secondary position with respect to the first and second dimensions and such that any different threads in

the second dimension with lower priority than the first priority are subsequent in position to the secondary position", claim 12 recites.

Accordingly, and for these additional reasons, the 35 USC §103(a) rejection of claim 12 should be withdrawn.

Claim 13 recites in part "inserting the thread of execution into a first dimension of the multi-dimensional sleep queue if: (a) there is not a thread with a wake-up time equivalent to the predetermined amount of time in the first dimension", and "(b) if there are one or more different threads of execution with the wake-up time in a second dimension of the multi-dimensional sleep queue, each of the one ore more different threads of execution has a thread priority lower than or equal to a thread priority associated with the thread of execution." For the reasons already described above with respect to claim 1, AAPA in view of Young does not teach or suggest the recited features of claim 13.

Accordingly, for this reason alone, the 35 USC §103(a) rejection of claim 13 is improper and should be withdrawn.

Claims 14-18, and 20-23 depend from claim 13 and are allowable over the cited combination solely by virtue of this dependency. For this reason alone, the 35 USC §103(a) rejection of claims 14-18 and 20-23 is improper and should be withdrawn.

Additionally, for the reasons already described above, claims 18 and 22-23 include additional features that are not taught or suggested by the cited combination of references. For these additional reasons, the 35 USC §103(a) rejection of claims 18, and 22-23 should be withdrawn.

Claim 24 recites in part "inserting a new thread into the multi-dimensional sleep queue using a multi-dimensional atomic walk procedure". Nowhere do the

references of record teach or suggest this feature. In addressing this claim, the Action, at page 8, section 24, asserts that this feature is taught by AAPA in view of the system described by Young at col. 5, line 42, and Fig. 4. It is respectfully submitted, that this conclusion is unsupportable.

Firstly, as the Action concedes that AAPA merely describes management of a single dimension run queue, and is completely silent with respect to "the multi-dimensional sleep queue". With respect to the portion of Young cited in addressing claim 24, let's take a look at what col. 5, line 42 and Fig. 4 describe. Col. 5, lines 41-45 explicitly describe "[w]hen there is a new SCB in SCB array 255 , firmware implementing append operation 400 (FIG. 4) and executing on sequencer 225 reads the target number from the SCB in read target number operation 401, and processing transfers to valid tail pointer check operation 402." This cited portion of Young describes aspects of Fig. 4. At col. 3, lines 54-57, Young describes that "FIG. 4 is a process flow diagram of one embodiment of a method *for appending* hardware command blocks to the two-dimensional hardware command block queue of FIGS. 3A and 3B." [Emphasis added]. Merely appending a hardware command block to a queue does not teach or suggest an "atomic walk procedure", as claim 24 recites.

For instance, the specification at page 16, line 21, through page 17, line 5, describing Fig. 6 showing an exemplary "atomic walk procedure", as claim 24 recites, describes:

> *"[i]f the new thread is determined not to be the first thread (block 610), at block 618, the procedure sets a last examined node/thread to reference, the inserted first node (block 612). At block 620, the procedure preempts all other threads from executing by grabbing system-exclusive access to the processor. At block 622, the procedure 600 determines if a state of the last node has changed. As*

discussed above, the last node's state changes if it has already been removed from the sleep queue (e.g., already inserted into the run queue for execution), or if the last node was moved from a primary position with respect to the first and second dimensions of the sleep queue to a secondary position.

Nowhere does AAPA in view of Young teach or suggest such an "atomic walk procedure". Instead, AAPA is completely silent with respect to any detailed aspects of thread insertion into a single dimension sleep queue. AAPA at most briefly mentions run queue thread insertion, not sleep queue thread insertion; and, even then, AAPA does not teach any detailed aspects of such insertion. Young merely describes appending a hardware control block to the end of a queue. Nowhere does Young teach or suggest any more complex object evaluation and insertion procedure such as that provided by the claimed "atomic walk procedure", wherein node states are examined to determine if they have already been removed from a sleep queue, or moved from a primary position with respect to first and second dimensions to a secondary position, as described above.

Accordingly, and for these reasons alone, the 35 USC §103(a) rejection of claim 24 is improper and should be withdrawn.

As an additional matter, Applicant's specification at page 6, line 14 through page 20, line 9, which references Figs. 6 though 9, clearly describe an exemplary "atomic walk procedure, as Applicant claims. These pages are not recited in their entirety herein, but are incorporated by reference. The Office is urged to reconsider this description of an exemplary "atomic walk procedure", as the features of the claims are to be interpreted in light of the specification. Moreover, if claim 24 is again rejected in view of AAPA in view of Young, Applicant respectfully requests the Office to particularly point out where such "an atomic

walk procedure" as described in the specification is taught or suggested in the cited combination.

Claims 25-30 depend from claim 24 and are allowable over the cited combination by virtue of this dependency. Accordingly, the 35 USC §103(a) rejection of claims 25-30 should be withdrawn.

Additionally, claims 25 and 30 include additional features that are not taught or suggested by the cited combination of references.

For instance, claim 25 recites "if the new thread is a first thread, setting a last examined thread to reference the new thread, the last examined thread being used to identify an insertion point for the new thread." In addressing this claim, the Action at page 8, section 25, asserts that the Examiner interprets "'a last examined node' as the last entry on the common queue since applicant did not preclude nor define this limitation". This strict interpretation is unsupportable, especially since the specification clearly describes, more than once, that "a last examined node" does not match the Action's strict interpretation.

Applicant's specification at page 6, line 14 through page 20, line 9, which references Figs. 6 though 9, clearly describe an exemplary "atomic walk procedure, as Applicant claims. The specification, page 16, lines 21-23, describe operations of procedure 600 of Fig. 6, clearly indicate that "[i]f the new thread is determined not to be the first thread (block 610), at block 618, the procedure *sets a last examined node*/thread to reference, the inserted first node (block 612)." [Emphasis added]. Additionally, referring to Fig. 6, block 618 maps the phrase "sets the last examined node" from the specification to the phrase "set last node to first node in the sleep queue". This example alone shows that the Action's strict

interpretation of "a last examined node" is not "the last entry on the common queue", as the Action asserts.

In another example, the specification at page 17, lines 1-7, describes "[a]t block 622, the procedure 600 determines if a state of the last node has changed. [....] If the state of the last node has not changed (block 622), the procedure 600 continues at block 710 as shown in Fig. 7". At page 17, lines 22-25 (see also, Fig. 7), the specification explicitly recites "[a]t block 716, it having been determined that the last examined thread/node does not indicate an insertion point for the new thread in the sleep queue (block 710), the procedure 600 sets the last examined node/thread to indicate a next node in the sleep queue." This additional example clearly shows that before (and possibly after) the operation of block 716, the Action's strict interpretation of "a last examined node" as "the last entry on the common queue" is improper.

Nowhere does AAPA in view of Young teach or suggest "a last examined node" as claim 25 recites.

Accordingly, and for this additional reason, the 35 USC §103(a) rejection of claim 25 should be withdrawn.

In yet, another example, claim 30 recites in part "determining if a status of a last examined thread has changed, the status indicating either that the last examined thread was removed from the multi-dimensional sleep queue, or indicating that the last examined thread was moved from a first dimension of threads that is sorted based on respective thread wake-up times, to a second dimension of threads that is ordered based on respective thread priorities", "if the status of the last examined thread has changed, searching for the thread insertion point from a beginning of the multidimensional sleep queue", and "if the status of

the last examined thread has not changed, searching for the thread insertion point from the last examined thread." Nowhere do the references of record teach or suggest these recited features.

In addressing this feature, the Action at page 29 concedes that "AAPA as modified does not specifically teach determining a status of a last examined thread and searching for thread insertion point to insert threads based on the status." To supply this missing feature, the Action points to Figs. 3A and 4, components 350, and 404-408 of Young, for showing a scratch memory that stores the value of tail pointers that points to the last SCB in a queue. The Action concludes that it "would have been obvious to one of ordinary skill in the art, to have recognized that changes in the status of the last examined thread can be used to determining a starting point for insertion because doing so will yield a more optimized insertion procedure by not having to traverse the entire queue to locate an insertion point if the status of a last examined node does not change. This conclusion is unsupportable.

For the reasons already described above with respect to claim 25, the cited combination does not teach or suggest "a last examined thread", as claim 30 recites. Accordingly, and for this reason alone, the 35 USC §103(a) rejection of claim 30 over the cited combination is improper and should be withdrawn.

Additionally, nowhere does AAPA in view of Young teach or suggest examination of a node's internal attributes, even when the node is associated with a tail pointer. For these reasons alone, a system of AAPA in view of Young may never "determining if a status of a last examined thread has changed, the status indicating either that the last examined thread was removed from the multi-dimensional sleep queue, or indicating that the last examined thread was moved

from a first dimension of threads that is sorted based on respective thread wake-up times, to a second dimension of threads that is ordered based on respective thread priorities", "if the status of the last examined thread has changed, searching for the thread insertion point from a beginning of the multidimensional sleep queue", and "if the status of the last examined thread has not changed, searching for the thread insertion point from the last examined thread", as claim 30 recites.

For this additional reason, the 35 USC §103(a) rejection of claim 30 over the cited combination is improper and should be withdrawn.

Claim 31 recites "inserting a new thread into the sleep queue using a multi-dimensional atomic walk procedure", and "removing the new thread from the sleep queue for insertion into a run queue." For the reasons already discussed above with respect to claim 24, the cited combination of AAPA in view of Young does not teach or suggest these claimed features.

Accordingly, the 35 USC §103(a) rejection of claim 31 is improper and should be withdrawn.

Claims 32-37 depend from claim 13 and are allowable over the cited combination solely by virtue of this dependency. For this reason alone, the 35 USC §103(a) rejection of claims 32-38 is improper and should be withdrawn.

Additionally, for the reasons already described above with respect to claims 25 and 30, claims 32 and 37 include additional features that are not taught or suggested by the cited combination of references. For these additional reasons, the 35 USC §103(a) rejection of claims 32 and 37 should be withdrawn.

Claim 39 recites "inserting the thread of execution into a first dimension of the multi-dimensional sleep queue if: (a) there is not a thread with a wake-up time equivalent to the predetermined amount of time in the first dimension", and "(b) if

there are one or more different threads of execution with the wake-up time in a second dimension of the multi-dimensional sleep queue, each of the one ore more different threads of execution has a thread priority lower than or equal to a thread priority associated with the thread of execution." This claim is rejected for the same rational used by the Action to reject claim 1. Thus, and for the reasons already discussed with respect to claim 1, AAPA in view of Young does not teach or suggest these claimed features.

Accordingly, the 35 USC §103(a) rejection of claim 39 is improper and should be withdrawn.

Claims 40-44, 46, and 48-49 depend from claim 39 and are allowable over the cited combination solely by virtue of this dependency. For this reason alone, the 35 USC §103(a) rejection of claims 40-44, 46, and 48-49 is improper and should be withdrawn.

Additionally, for the reasons already described above with respect to claims 7, 11, and 12, claims 44, 48, and 49 include additional features that are not taught or suggested by the cited combination of references. For these additional reasons, the 35 USC §103(a) rejection of claims 44, 48, and 49 should be withdrawn.

Conclusion

Pending claims 1-7, 9, 11-18, 20-37, 39-44, 46, and 48-49 are in condition for allowance and action to that end is respectfully requested. Should any issue remain that prevents allowance of the application, the Office is encouraged to contact the undersigned prior or issuance of a subsequent Office action.

Respectfully Submitted,

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By: Brian Hart

Brian G. Hart
Reg. No. 44, 421
(509) 324-9256